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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Ragnar Ledesma

Group Art Unit: 3616

Serial No.: 10/021,128

Examiner: To, Toan C.

Filed: December 12, 2001

Title: *INDEPENDENT SUSPENSION UNDERCARRIAGE
MODULE FOR A LOW FLOOR VEHICLE*

Box AF
Commissioner For Patents
P. O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Dear Sir:

Subsequent to the filing of the Notice of Appeal on 9 June 2004, Appellant now submits its brief. A check in the amount of \$330.00 is enclosed. Any additional fees or credits may be charged or applied to Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds.

REAL PARTY IN INTEREST

The real party in interest is **Meritor Heavy Vehicle Technology, LLC**, the assignee of the entire right and interest in this Application.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

08/12/2004 HALI11 00000035 10021128

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STATUS OF CLAIMS

Claims 16 and 17 stand allowed.

Claims 6 and 13 are objected to as being dependent to a rejected base claim. Claims 16 and 17 are allowable claims 6 and 13 in independent form.

Claim 1-5, 7-12, 14-15 and 18-21 stand finally rejected.

STATUS OF THE AMENDMENTS

All amendments have been entered.

SUMMARY OF THE INVENTION

An independent suspension systems 38,40 is mounted to an underside 28 of a vehicle 10 as an independent undercarriage module 42. The module 42 is an integral unit previously assembled and collectively mounted to the vehicle 10. *[See specification paragraph 15-19]*

The module 42 includes a subframe 44 which is substantially U-shaped but having a distal portion of the legs of the U bent outwardly. The subframe includes a first subframe segment 46 and a second subframe segment 48 to substantially match the underside 28 of the vehicle 10. The first subframe segment 46 is located below the first profile 26 segment of the floor 18 which defines the aisle 22. The second subframe segment 48 is located below the second profile segment 28 which defines the portion of the floor 18 beneath the passenger seats 20. *[See specification paragraphs 20-21]*

Referring to Figure 2, the subframe 44 may be manufactured of a composite material. By orientating the fibers of each layer in particular directions, a truss-like (Figure 3) structural unibody is formed. Preferably, the layers are oriented to provide maximum stiffness in the torsional load. The subframe 44 is therefore relatively light, yet provides structural rigidity particularly tailored to the suspension systems 38,40 of the vehicle (Figure 1). *[See specification paragraph 22-24]*

The module 42 is mounted to the underside 28 of the vehicle 10 through a plurality of resilient dampers 52 (also illustrated in Figure 1). Fasteners 54 such as bolts are located through the dampers 52 which are formed of an elastomeric material such as rubber or the like which isolate the module 42 from the vehicle underside 28. The dampers 52 filter out high frequency content generated by the suspension systems 38, 40 to provide passengers with a secondary vibration isolation structure separate from the suspension systems 38, 40. [See specification paragraph 25]

ISSUES

I. 35 U.S.C. 103(a)

Is the final rejection of Claims 1-5, 7-12, 14-15 and 18-21 under 35 U.S.C. §103(a) proper as being unpatentable over *Belik* (4,469,369) in view of *Ruppert* (6,276,474).

GROUPING OF CLAIMS

A. The Rejection of Claims 1-3, 7-11, 13-15 and 20-21 is contested. Claims 1-3, 7-11, 13-15 and 20-21 all stand or fall together with independent claim 1 for purposes of this appeal.

B. The Rejection of Claim 4 is separately contested. Claim 4 does not stand or fall together with claim 1 for purposes of this appeal.

C. The Rejection of Claim 5 is separately contested. Claim 5 does not stand or fall together with claim 1 for purposes of this appeal.

D. The Rejection of Claim 12 is separately contested. Claim 12 does not stand or fall together with claim 11 for purposes of this appeal.

E. The Rejection of Claim 14 is separately contested. Claim 14 does not stand or fall together with claim 11 for purposes of this appeal.

F. The Rejection of Claim 18 is separately contested. Claim 18 does not stand or fall together with claim 1 for purposes of this appeal.

G. The Rejection of Claim 19 is separately contested. Claim 19 does not stand or fall together with claim 11 for purposes of this appeal.

ARGUMENTS

I. 35 U.S.C. 103 Arguments

A. The Rejection of Claims 1-5, 7-12, 14-15 and 20-21 under 35 U.S.C. 103(a) is Improper

Claims 1-5, 7-12, 14-15 and 20-21 stand finally rejected under 35 U.S.C. §103(a) as being unpatentable over *Belik* (4,469,369) in view of *Ruppert* (6,276,474).

It is axiomatic that an obviousness rejection must come from the suggestions or teachings of the references themselves. A proper suggestion or motivation to make a combination requires some benefit to result from the combination. When the additional teachings of a secondary reference do not provide any benefit to the arrangement disclosed in a primary reference, no prima facie case of obviousness exists.

Belik discloses bus modules that are complete longitudinal sections of a bus. That is, the bus is essentially sectioned into portions which include everything in that section, e.g. body, interior, windows, and suspension which are attached together to make vehicles of various lengths. *Belik* specifically recites:

The unit 4 comprises a pair of coaxially disposed wheels 20 (FIG. 2) connected with the window section 2, said wheels being mounted within the recesses 10 of said section.

[col. 5, lines 10-13]

This is conventional sectional construction utilized, for example, in shipbuilding. *Belik* makes no reference to a separate driveline. As recited above, the wheels are mounted directly to the section floor 9 (See Figure 2). *Belik* does not disclose a separate subframe. ***In fact, the Examiner admits that Belik does not directly disclose independent undercarriage modules for a low floor vehicle wherein the second profile segment defines the floor beneath the passenger seat.*** [See 03-09-2004 Office Action, page 3]

Ruppert discloses an electric drive unit assembly 20 of a rigid axle construction which supports a multiple of electric motors. *Ruppert* only discloses schematically the location of the drive unit assembly 20 adjacent the floor to a low floor vehicle 10 (Figure 1). Notably, the drive unit assembly 20 is mounted directly adjacent the floor 18 of the vehicle body. *Ruppert* makes not reference to modules of any sort and adds nothing to the teaching of *Belik*. *Belik* schematically disclose the same direct mounting arrangement as disclosed by *Ruppert* in Figure 2. Notably, both *Belik* (Figure 2) and *Ruppert* (Figure 1) are almost identical in that the drive assemblies of each are schematically located directly adjacent the vehicle body.

There is no prima facie case of obviousness because there is no benefit to adding the teachings from the *Ruppert* reference to the *Belik* reference as suggested by the Examiner. Without any benefit to the proposed combination, there is no prima facie case of obviousness and the rejection must be overturned.

Moreover, even if the combination is proper, the combination fails to disclose features of the present application. The proposed rejection, even if proper, fails to disclose or suggest a subframe having a first subframe segment mountable adjacent a first vehicle underside profile segment and a second subframe segment mountable adjacent a second vehicle underside profile segment, the first vehicle underside profile segment defining a floor for a vehicle aisle and the second vehicle underside profile segment defining the floor beneath a passenger seat.

As discussed above, each reference in the proposed combination discloses on a single vehicle body floor to which the drive assembly (the electric axle in *Rupert* or the independent suspension of *Belik*) is attached. The Examiner suggests that *Belik* “clearly discloses a bus having a frame 23 being disposed under a projection 9 and floor 8. Therefore, floor 8 and projection 9 is considered to correspond to vehicle underside of the present invention, and the frame 23 of *Belik* correspond to subframe of the present invention.” However, floor 8 and projection 9 are a portion of ***the vehicle body underside itself – not a subframe***. The equivalent to floor 8 and projection 9 in the cited references are the vehicle underside of floor 18 and the second profile segment 26 in Appellant’s specification.

Furthermore, the frame 23 of *Belik* is located only adjacent the floor 8 of *Belik*. The floor 8 of *Belik* would arguably correspond to the vehicle underside profile segment defining a floor 18 for a vehicle aisle as recited in Appellants claim language. Even if this is so, the proposed combination still fails to suggest the second subframe segment mountable adjacent the second vehicle underside profile segment defining the floor beneath a passenger seat. Notably, the only components under the floor projection 9 of *Belik* are the upper and lower levers 24, 25 which under no just interpretation could be considered a second subframe segment mountable adjacent a second vehicle underside profile segment as recited by Appellant’s claim language.

Neither reference, individually or in combination, discloses or suggests a subframe in any way. There are simply no subframe segments mountable adjacent the vehicle underside profile segments as claimed by Appellant. The rejection must be overturned.

B. The Rejection of Claim 4 under 35 U.S.C. 103(a) is Improper

Claim 4 recites that the subframe is manufactured of a composite material. The Examiner admits that Belik does not directly disclose independent undercarriage modules for a low floor vehicle wherein the second profile segment defines the floor beneath the passenger seat. [See 03-09-2004 Office Action, page 3] The Examiner admits that *Ruppert* does not directly disclose what type of material is used to make the subframe. [See 03-09-2004 Office Action, page 3] The Examiner's only support for this rejection is the Examiner's assertion that "it would be obvious to one of ordinary skill in the art at the time the invention was made to modify their invention such that the subframe is manufactured of a composite material and include a laminate material which resists torsional loads to increase the load capacity of the vehicle." [See 03-09-2004 Office Action, page 3] However, the references themselves fail to support such a composite construction and the rejection must fail.

C. The Rejection of Claim 5 under 35 U.S.C. 103(a) is Improper

Claim 5 depends from claim 4 and further recites that the subframe includes a laminate material which resists torsional loads. The Examiner attempts to support this rejection by suggesting that "it would be obvious to one of ordinary skill in the art at the time the invention was made to modify their invention such that the subframe is manufactured of a composite material and include a laminate material which resists torsional loads to increase the load capacity of the vehicle." [See 03-09-2004 Office Action, page 3] Even if it is within the general skill of a worker to select a known material on the basis of its suitability for the intended use as an obvious matter of design choice, there is no disclosure whatsoever in the proposed combination which suggests a laminate material which resists torsional loads. The only suspension disclosure in the proposed combination – and that disclosure is essentially schematic - is of conventional axle/suspension construction. No mention is made of utilizing laminates to resist torsional loads because the suspension disclosed in the proposed combination are conventional (subframeless) construction. That is the torsional loads

are conventionally resisted through the axle/suspension construction of the cited references. The rejection must be overturned.

D. The Rejection of Claim 12 under 35 U.S.C. 103(a) is Improper

Claim 12 recites that the subframe includes a laminate material which resists torsional loads. As discussed with regard to claim 5 above, the only suspension disclosure in the proposed combination – and that disclosure is essentially schematic - is of convention axle/suspension construction. Claim 12 depends from claim 11 which recites a suspension system mounted to said second subframe segment. This further defines the location of the suspension system to the subframe and further defines that the subframe itself – and not just the suspension system – resists torsional loads. The rejection must be overturned.

E. The Rejection of Claim 14 under 35 U.S.C. 103(a) is Improper

Claim 14 recites that wherein said first and second subframe segments are planar members. The Examiner's proposed combination argues the element 23 24 are planar members. Claim 14 depends from claim 12 which recites said subframe includes a laminate material which resists torsional loads which further depends from the from claim 11 which recites a suspension system mounted to said second subframe segment. Notably, the elements 23, 24 ***are portions of the Belik suspension system***. The *Belik* suspension elements 23, 24 cannot be properly interpreted as mounted to themselves because Appellant's claims specifically separate the suspension system from the subframe. Furthermore, Appellant's claims then specifically recite that the subframe is of a laminate material. The Examiner's basic assertion that the element 23 24 are planar fails to suggest all of the Appellant's claim limitations. The rejection must be overturned.

F. The Rejection of Claim 18 under 35 U.S.C. 103(a) is Improper

Claim 18 recites said first subframe segment is substantially parallel to and offset from said second subframe segment. As discussed above, the proposed combination fails to suggest subframe segments which are parallel to and offset from each other. The only disclosure by the cited references are the vehicle body sections 18 of *Ruppert* and 9, 8 of *Belik*, respectively. The Examiner argues the element 23 is parallel to element 24. Element 24, however, is a lever. There is no fair interpretation lever 24 being parallel to element 23. Thus, for this additional region the rejection must fail.

G. The Rejection of Claim 18 under 35 U.S.C. 103(a) is Improper

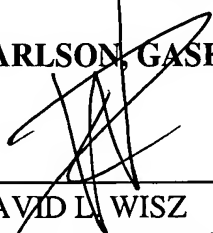
Claim 19 recites said first subframe segment is substantially parallel to and offset from said second subframe segment. Claim 19 depends from claim 11 which recites a suspension system mounted to said second subframe segment; and a plurality of resilient dampers are mounted between said subframe and the vehicle underside. The limitation of claim 19 further prevents any interpretation of suspension members as a subframe segments because claim 19 recites that the suspension is mounted to the second segment and the dampers are mounted between the subframe segment and the vehicle underside. The rejection must be overturned.

CLOSING

For the reasons set forth above, the rejection of all claims is improper and should be reversed.
Appellant earnestly requests such an action.

Respectfully submitted,

CARLSON, GASKEY & OLDS, P.C.

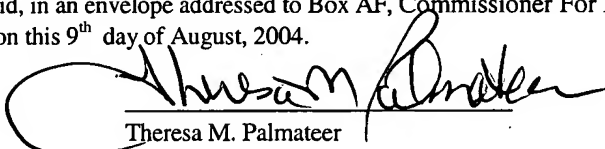


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Dated: 9 August 2004

CERTIFICATE OF MAIL

I hereby certify that the enclosed Appeal Brief (in triplicate) is being deposited with the United States Postal Service in triplicate as First Class Mail, postage prepaid, in an envelope addressed to Box AF, Commissioner For Patents, P. O. Box 1450, Alexandria, VA 22313-1450, on this 9th day of August, 2004.



Theresa M. Palmateer

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CLAIM APPENDIX

1. An independent undercarriage module for a low floor vehicle comprising:
a subframe having a first subframe segment mountable adjacent a first vehicle underside profile segment and a second subframe segment mountable adjacent a second vehicle underside profile segment, the first vehicle underside profile segment defining a floor for a vehicle aisle and the second vehicle underside profile segment defining the floor beneath a passenger seat; and
a suspension system mounted to said subframe.
2. A module as recited in Claim 1 wherein said suspension system is mounted substantially below said second subframe segment with reference to the vehicle.
3. A module as recited in Claim 2 wherein said suspension system includes a non-driven vehicle wheel.
4. A module as recited in Claim 1 wherein said subframe is manufactured of a composite material.
5. A module as recited in Claim 4 wherein said subframe includes a laminate material which resists torsional loads.
6. A module as recited in Claim 4 wherein said subframe is a single continuous member.
7. A module as recited in Claim 4 wherein said subframe includes a multiple of substantially planar members.

8. A module as recited in Claim 1 further including a plurality of resilient dampers mounted to said subframe.

9. A module as recited in Claim 8 wherein said resilient dampers are mounted between said subframe and the vehicle underside.

10. A module as recited in Claim 9 wherein said resilient dampers filter high frequency vibrations generated by said suspension system.

11. An independent undercarriage module for a low floor vehicle comprising:
a composite subframe having a first subframe segment mountable adjacent a first vehicle underside profile segment and a second subframe segment mountable adjacent a second vehicle underside profile segment, the first vehicle underside profile segment defining a floor for a vehicle aisle and the second vehicle underside profile segment defining the floor beneath a passenger seat;
a suspension system mounted to said second subframe segment; and
a plurality of resilient dampers are mounted between said subframe and the vehicle underside.

12. A module as recited in Claim 11 wherein said subframe includes a laminate material which resists torsional loads.

13. A module as recited in Claim 12 wherein said subframe is a single continuous member.

14. A module as recited in Claim 12 wherein said first and second subframe segments are planar members.

15. A module as recited in Claim 11 wherein said resilient dampers filter high frequency vibrations generated by said suspension system.

16. An independent undercarriage module for a low floor vehicle comprising:
a composite material subframe, said subframe comprising a single continuous member having a first subframe segment mountable adjacent a first vehicle underside profile segment and a second subframe segment mountable adjacent a second vehicle underside profile segment, the first underside profile segment defines a floor for a vehicle aisle and the second vehicle underside profile segment defining the floor beneath a passenger seat; and
a suspension system mounted to said composite material subframe.

17. An independent undercarriage module for a low floor vehicle comprising:
a composite subframe having a first subframe segment mountable adjacent a first vehicle underside profile segment and a second subframe segment mountable adjacent a second vehicle underside profile segment, the first vehicle underside profile segment defining a floor for a vehicle aisle and the second vehicle underside profile segment defining the floor beneath a passenger seat, said subframe comprises a single continuous member of a laminate material which resists torsional loads;
a suspension system mounted to said second subframe segment; and
a plurality of resilient dampers are mounted between said subframe and the vehicle underside.

18. A module as recited in Claim 1 wherein said first subframe segment is substantially parallel to and offset from said second subframe segment.

19. A module as recited in Claim 11 wherein said first subframe segment is substantially parallel to and offset from said second subframe segment.

20. A module as recited in Claim 1 wherein said subframe forms a portion of a vehicle underside.
21. A module as recited in Claim 11 wherein said subframe forms a portion of a vehicle underside.